

Start Jan 12th 2017

Work Order ID 154248

154248

Wednesday, December 07, 2016 10:46:00 A

Page 1

Item ID: D2003-043 Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: Tube Assembly-8J
Start Date: 12/9/2016 Start Qty: 1.00 ***1*** Cust Item ID:
Required Date: 1/6/2017 Req'd Qty: 1.00 ***1*** Customer:
Reference:

Approvals: Process Plan: _____ Date: **DEC 07 2016** Tooling: _____ Date: _____
QC: **DAS 21 3-89** Date: _____ SPC (Y/N): _____ Date: _____
Run Start ***NR1***
Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

Draw Nbr	Revision Nbr
D2003	C

100
100 Small Fab 0.00
Small Fab Memo 0.00
Small Fab 1-Form tube as per template D2003-043

110
110 QC 0.00
Quality Control Memo 0.00

120
120 Small Fab 0.00
Small Fab Memo 0.00
Small Fab 1-Cut tube as per template D2003-043 and cut heat sleeve as per dwg
2 -Assemble as per Dwg D2003

DEC 12 2016
DEC 11-2-2016
DAS 30 9-89
DEC 12 2016
DEC 13 2016

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition			
				Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : ☐					

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Page 2

Item ID: D2003-043 Accept ***N900040100*** Setup Start ***NS1***
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Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____
Run Start ***NR1***
Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
130 *130* QC Quality Control	QC5- Inspect part completeness to step on W/O Memo	0.00 0.00				1			DAS 38 9-89 DEC 13 2016
140 *140* Packaging Packaging	Identify as per dwg & Stock Location: <u>85210</u> Memo	0.00 0.00				1X			DAS 26 9-89 DEC 14 2016
150 *150* QC Quality Control	QC21- Final Inspection - Work Order Release Memo	0.00 0.00							DAS 21 9-89 DEC 15 2016 MF 16-12-14

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval		
Description Work Order Deviation				Disposition					

Root Cause				FAULT CATEGORY			
☐ Environment	☐ Design	☐ Doc/Data	☐ Equip/Tooling	☐ Handling/Pre	☐ Material	☐ Internal Transport	☐ Tribal Knowledge
☐ LOA	☐ Substation	☐ Past Expiry Date	☐ Misidentified	☐ No Re-verification	☐ Operator	☐ Offset/Setup	☐ Supplier
☐ Training	☐ Use for Testing	☐ Poor Information	☐ Rushing	☐ Product Improvement	☐ Process Improvement	☐ Manufacturing Process	☐ Past Due
☐ Pressure/Forced	☐ Bending	☐ Centre Not Concentric	☐ Cracks	☐ Crimp/Kink/Ripple/Wave	☐ Cuffs	☐ Crushing	☐ Heat Treat
☐ Wave/Twist in Tube	☐ Marks/Chatter	☐ Temperature/Cure	☐ Set-up	☐ BOM/Route	☐ Broken/Damage/Defect	☐ Inspection Incomplete/Unqualified	☐ Contamination
☐ Countersink	☐ Cut Too Short	☐ Instructions Incomplete/Unclear	☐ Drill Holes	☐ Power Loss/Surge	☐ Folio/Program	☐ Grain	☐ Weld
☐ Wrong Stock Pulled	☐ Out of Sequence	☐ Off-set	☐ Mislabeled	☐ Fit/Function	☐ Misaligned/off center	☐ Positioned Wrong	☐ Outside Dimensions
☐ Over/Under tolerance	☐ Part Incorrect	☐ Part Lost/Missing	☐ Part Moved	☐ Drawing	☐ Finish	☐ Misread	☐ Turning Sequence
OTHER : _____							

Picklist Print

Wednesday, December 07, 2016 10:46:03 AM

Page 1

Work Order ID: 154248

154248

Parent Item: D2003-043

D2003-043

Parent Item Name: Tube Assembly-8J

Start Date: 12/9/2016

Required Date: 1/6/2017

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP Rev:A 10.11.02 as per revB DD verf:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	-------------	--------------	---------------	----------------	--------

AN818-8J		Purchased	No			100	Each	10.0000	2	2			
AN818-8.J													
Nut													

**

FF

DEC 12 2016

Location

Loc Qty

Loc Code

ST325

10

118179

10

M2650-6		Purchased	No			100	f	49.0000	0.975	1.026316			
M2650-6													
Firesleeve-Crkl .375Idia													

**

FF

DEC 13 2016

Location

Loc Qty

Loc Code

Mezz

49

114341

49

M304TR0.500W.035		Purchased	No			100	f	86.0478	0.975	1.026316			
M304TR0 500W 035													
304 RD Tube .500 x .035W													

**

FF

DEC 12 2016

Location

Loc Qty

Loc Code

GA

M133509

22.0342069

m135373

22.0342069

GA002

49.6440447

m132872

1.6822064

m133611

3.994895

m134504

43.9669433

MAT

14.3695754

m135498

14.3695754

NOT Pulled
Not in system

1.026316

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

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Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date : _____	Step #: _____	QTY Effective : _____		MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval	
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Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
		OTHER : _____			

Picklist Print

Page 2

Wednesday, December 07, 2016 10:46:03 AM

Work Order ID: 154248

154248

Parent Item: D2003-043

D2003-043

Parent Item Name: Tube Assembly-8J

Start Date: 12/9/2016

Required Date: 1/6/2017

Start Qty: 1.00

Required Qty: 1.00

MS20819-8J

Purchased

No

100

Each

7.0000

2

2

MS20819-8.J********FF DEC 12 2016**

Sleeve

LocationLoc QtyLoc Code

ST307

7

112933

7

2

Wednesday, December 07, 2016 10:46:03 AM

Shop Packet Print

Page 2

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

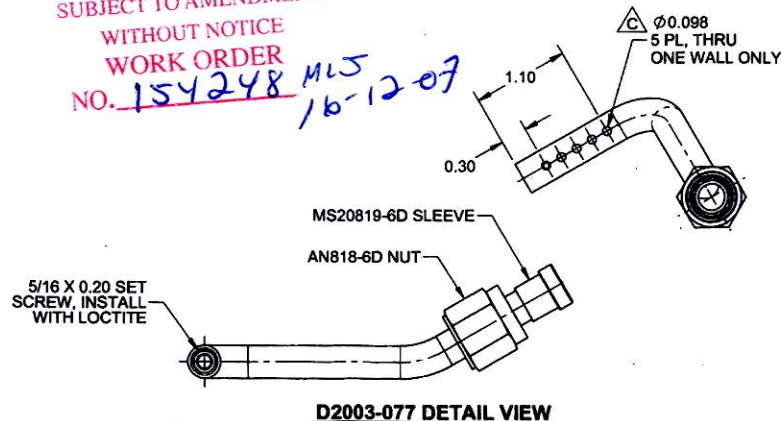
Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
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Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
☐ OTHER : _____					

NOTES:

1) MATERIAL:

- 1.1) 6061-T6/T62/T6510/T6511 SEAMLESS TUBING, 0.375 OD X 0.035 WALL
PER WW-T-700/6 OR QQ-A-200/8 OR QQ-A-225/8 OR AMS 4080/4082/4083 OR ASTM B210/B241
REF. DART SPEC. M6061T6T0.375W0.035
OR
5052-OT SEAMLESS ROUND TUBING, 0.375 OD X 0.035 WALL
PER WW-T-700/4 OR ASTM-B-210-02
REF. DART SPEC. M5052-OT0.375W0.035
- 1.2) 6061-T6/T62/T6510/T6511 SEAMLESS TUBING, 0.500 OD X 0.035 WALL
PER WW-T-700/6 OR QQ-A-200/8 OR QQ-A-225/8 OR AMS 4080/4082/4083 OR ASTM B210/B241
REF. DART SPEC. M6061T6T0.500W0.035
OR
5052-OT SEAMLESS ROUND TUBING, 0.500 OD X 0.035 WALL
PER WW-T-700/4 OR ASTM-B-210-02
REF. DART SPEC. M5052-OT0.500W0.035
- 1.3) AISI 304/316 SS SEAMLESS ROUND TUBING, 0.500 OD X 0.035 WALL
PER ASTM A213 OR ASME SA213 OR ASTM A269
REF. DART SPEC. M304TR0.500W0.035
- 1.4) HEATSLEEVE: STRATOFLEX M2650-6 CRINKLE-SOFT UNLESS OTHERWISE NOTED
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: PER DART QSI 044 6.1
- 7) WEIGHT: SEE TABLE
- 8) FORMING: IN ACCORDANCE WITH TEMPLATES
- 9) FLARING OF TUBING: 30° TO MATE WITH FITTINGS PER MS33514
- 10) HEATSLEEVE INSTALLATIONS: OVER ALL TUBES WITH DESIGNATED LENGTH PER PARTS LIST
- 11) IT IS ACCEPTABLE TO SUBSTITUTE 0.035 WALL THICKNESS WITH 0.049 WALL THICKNESS

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WITHOUT NOTICE
WORK ORDER
NO. 154248 MJS
16-12-07



P/N	TEMPLATE	HEATSLEEVE LENGTH 1.4	CUT LENGTH OF TUBE 1.8	MS20819-6J SLEEVE	AN818-6J NUT	MS20819-3D SLEEVE	AN818-3D NUT	MS20819-6D SLEEVE	AN818-6D NUT	DESCRIPTION	MATERIAL	WEIGHT (In lbs)
D2003-001	T2003-001	5.2	6.00					2	2	TUBE ASSY	SEE NOTE 1.1	0.06
D2003-003	T2003-003	7.3	8.12					2	2	TUBE ASSY	SEE NOTE 1.1	0.08
D2003-005	T2003-005	9.8	10.62					2	2	TUBE ASSY	SEE NOTE 1.1	0.10
D2003-007	T2003-007	20.0	19.63					2	2	TUBE ASSY	SEE NOTE 1.1	0.16
D2003-009	T2003-009	12.38	12.44					2	2	TUBE ASSY	SEE NOTE 1.1	0.12
D2003-011	T2003-011	33.31	32.38					2	2	TUBE ASSY	SEE NOTE 1.1	0.26
D2003-011A	T2003-011A	33.31	32.38					2	2	TUBE ASSY	SEE NOTE 1.1	0.26
D2003-013	T2003-013	12.7	13.54					2	2	TUBE ASSY	SEE NOTE 1.1	0.12
D2003-015	T2003-015	17.2	18.00					2	2	TUBE ASSY	SEE NOTE 1.1	0.14
D2003-017	T2003-017	17.0	16.25					2	2	TUBE ASSY	SEE NOTE 1.1	0.15
D2003-019	T2003-019	9.8	10.62			2	2			TUBE ASSY	SEE NOTE 1.2	0.15
D2003-021	T2003-021	N/A	2.25			2	2			TUBE ASSY	SEE NOTE 1.2	0.11
D2003-023	T2003-023	4.5	5.33			2	2			TUBE ASSY	SEE NOTE 1.2	0.10
D2003-025	T2003-025	9.8	10.60			2	2			TUBE ASSY	SEE NOTE 1.2	0.14
D2003-027	T2003-027	7.25	7.38			2	2			TUBE ASSY	SEE NOTE 1.2	0.12
D2003-029	T2003-029	17.2	18.00			2	2			TUBE ASSY	SEE NOTE 1.2	0.22
D2003-031	T2003-031	14.6	15.38	2	2					TUBE ASSY	SEE NOTE 1.3	0.59
D2003-033	T2003-033	29.75	29.62	2	2					TUBE ASSY	SEE NOTE 1.3	1.01
D2003-035	T2003-035	26.38	27.00	2	2					TUBE ASSY	SEE NOTE 1.3	0.93
D2003-037	T2003-037	24.81	24.81	2	2					TUBE ASSY	SEE NOTE 1.3	0.87
D2003-037A	T2003-037A	24.81	24.81	2	2					TUBE ASSY	SEE NOTE 1.3	0.87
D2003-039	T2003-039	34.0	34.00	2	2					TUBE ASSY	SEE NOTE 1.3	1.13
D2003-041	T2003-041	6.0	5.88	2	2					TUBE ASSY	SEE NOTE 1.3	0.22
D2003-043	T2003-043	11.7	10.75	2	2					TUBE ASSY	SEE NOTE 1.3	0.45
D2003-045	T2003-045	3.50	2.44	2	2					TUBE ASSY	SEE NOTE 1.3	0.21
D2003-047	T2003-047	5.56	5.56	2	2					TUBE ASSY	SEE NOTE 1.3	0.29
D2003-049	T2003-049	33.2	34.00	2	2					TUBE ASSY	SEE NOTE 1.3	1.13
D2003-077	T2003-077	N/A	6.25					1	1	JET	SEE NOTE 1.1	0.04
D2003-101	T2003-101	13.25	13.13			2	2			TUBE ASSY	SEE NOTE 1.1	0.12
D2003-103	T2003-103	12.38	12.00			2	2			TUBE ASSY	SEE NOTE 1.1	0.10
D2003-105	T2003-105	16.50	16.19			2	2			TUBE ASSY	SEE NOTE 1.1	0.14
D2003-107	T2003-107	12.75	12.25			2	2			TUBE ASSY	SEE NOTE 1.1	0.12
D2003-109	T2003-109	8.25	8.13			2	2			TUBE ASSY	SEE NOTE 1.2	0.12
D2003-111	T2003-111	4.75	4.63			2	2			TUBE ASSY	SEE NOTE 1.2	0.08
D2003-116	T2003-116	4.0	N/A							HEATSLEEVE	M2650-20 CRINKLE-SOFT	1.00
D2003-120	T2003-120	4.0	N/A							HEATSLEEVE	M2650-16 CRINKLE-SOFT	0.78
D2003-14	T2003-14	4.0	N/A							HEATSLEEVE	M2650-14 CRINKLE-SOFT	0.75
D2003-16	T2003-16	4.0	N/A							HEATSLEEVE	M2650-16 CRINKLE-SOFT	0.78
D2003-205	T2003-205	9.75	9.60			2	2			TUBE ASSY	SEE NOTE 1.1	0.10
D2003-207	T2003-207	3.75	3.75			2	2			TUBE ASSY	SEE NOTE 1.1	0.04

RELEASED
2014-10-20

C	FORMAT TO CURRENT STD; UPDATE NOTES AND TABLE; REVISE D2003-035/-037/-105; ADD D2003-011A/-037A, AND MISSING DIMENSION. REASON: PART 10-024	MB	14.10.06
B	UPDATE PER TEMPLATES; ADD P/N'S, 0.025 TUBING NOW 0.035 (TSR1049)	CP	99.06.08
A	NEW ISSUE	JB	90.04.09
REV.	DESCRIPTION	BY	DATE
DESIGN		JB	
DRAWN			
CHECKED			
MFG. APPR.			
APPROVED			
DE APPR.			
DATE	14.10.06		

DART AEROSPACE LTD
HAWKESBURY, ONTARIO, CANADA

DRAWING NO. D2003
TITLE 206 CABIN HEATER TUBE ASSY
REV. C
SHEET 1 OF 1
SCALE NTS

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